



VIA Labs, Inc.

**VL800/VL801 B3 USB3.0 Host Controller
Test Report**

Revision 0.9

Nov. 4, 2011

VIA Labs, Inc.

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REVISION HISTORY

Revision	Date	Note	Initial
0.9	Nov. 4, 2011	VL800/VL801 B3 FW010200 & DriverV1.60C Test Result	PW

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VL800/VL801 B3 Test Report

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1. Platform Compatibility Test

OS Compatibility List			
OS	Result	OS	Result
Win7_32bit	PASS	Win7_64bit	PASS
XP_32bit	PASS	XP_64bit	PASS
Motherboard Compatibility List			
Motherboard	Result	Motherboard	Result
ASUS P7P55D-E	PASS	Gigabyte GA-P67A-UD4	PASS
ASUS P5P43TD	PASS	Gigabyte GA-P67A-UD3-B3	PASS
ASUS P7H55D-M EVO	PASS	Gigabyte GA-P67A-UD3P-B3	PASS
ASUS P6T-DELUXE	PASS	Gigabyte GA_P55_USB3	PASS
ASUS P6X58D-E	PASS	Gigabyte GA-P55-USB3L	PASS
ASUS P8H67-M EVO	PASS	Gigabyte GA-P55A-UD3	PASS
ASUS M4A89TD PRO	PASS	Gigabyte GA-H57M-USB3	PASS
Intel DH55HC	PASS	Gigabyte GA-P55-UD3P	PASS
Intel DH55TC	PASS	Gigabyte GA-X58A-UD3R	PASS
Intel DX38BT	PASS	Gigabyte GA-P67A-UD3-B3	PASS
ASRock 890GM PRO3	PASS	Gigabyte GA-MA770T-USB3	PASS
ASRock 770 Extreme3	PASS	Gigabyte GA-790XTA-UD4	PASS
MSI 890GXM-G65	PASS	Gigabyte GA-MA785GMT-UD2H	PASS
Gigabyte GA-P67A-UD5	PASS	Gigabyte GA-770T-USB3	PASS

2. Device Compatibility Test

USB3.0 Devices List				
No.	Category	No.	Device	Functionality
1	Storage Devices	1	Genesyslogic GL3310 PCBA	PASS
		2	Buffalo BUF-HD-HXU3 1TB	PASS
		3	Sharkoon SATA quickport USB 3.0	PASS
		4	CyberSLIM S1-U3 USB 3.0	PASS
		5	CyberSLIM S2-U3 USB 3.0	PASS
		6	VLI VL700 PCBA	PASS
		7	VLI VL701 PCBA	PASS
		8	WD My Book 1TB HDD	PASS
		9	ASMedia ASM1051 PCBA	PASS
		10	JMicron JSM539 PCBA	PASS
		11	RiDate HD7 16GB USB3.0 pen drive	PASS
		12	Fujitsu USB3.0 SATA Bridge PCBA	PASS
		13	TI USB3.0 SATA Bridge PCBA	PASS
USB2.0/USB1.1/USB1.0 Devices List				
No.	Category	No.	Device	Functionality
1	Broadband Modem	1	AT&T Sierra AC885 USB Unlock 3G Data Card	PASS
2	Barcode Scanners	2	unitech MS180-1UG USB Barcode Scanner	PASS
3	Biometric Scanners	3	upek Eikon To Go Digital Privacy Manager	PASS
		4	upek Eikon Digital Privacy Manager	PASS
		5	PRECISE BIOMETRICS 100XS USB FINGERPRINT READER	PASS
4	Bluetooth Adapters	6	DigitalPersona U.are.U 4500 Finger Print Reader	PASS
		7	Aluratek USB to Bluetooth Wireless EDR 2.0 Adapter	PASS
		8	Belkin Mini Bluetooth Adapter	PASS
		9	D-Link DBT-120 Wireless Bluetooth 2.0 USB Adapter	PASS
		10	IOGEAR Bluetooth to USB Adapter, class 2	PASS
		11	IOGEAR Enhanced Data Rate Wireless USB Adapter	PASS
		12	cirago Micro Bluetooth USB2.0 Adapter v2.1 + EDR	PASS
		13	AZiO BTD603-132 USB 2.0 Bluetooth Adapter (Class 1 v. 2.0)	PASS

		14	ASUS USB-BT211 USB2.0 Mini Bluetooth v2.1 + EDR	PASS
		15	ASUS USB-BT21 USB 2.0 Mini Bluetooth Dongle	PASS
		16	IOGEAR GBU421 USB 2.0 Bluetooth Micro Adapter	PASS
5	Cameras	17	Kodak easyshare Z915 Digital Camera	PASS
		18	Sony Cyber-shot DSC-W220	PASS
		19	Casio Exilim EX-S5	PASS
		20	Weichu TX-1360	PASS
		21	Canon PowerShot A1100 IS	PASS
		22	Panasonic Lumix DMC-ZR1	PASS
6	Display Adapters	23	eVGA UV Plus+16 USB VGA Display Adapter	PASS
		24	IOGEAR USB2.0 External DVI Video Card	PASS
		25	TRITTON SEE2 Xtreme DVI to USB – Hi Memory TRI-UV200 USB 2.0 Interface	PASS
		26	StarTech USB2DVIE2 USB DVI External Dual or Multi Monitor Video Adapter	PASS
7	External DVD Drives	27	Rosewill USB 2.0 External Slim 8X DVD Burner	PASS
		28	IO-DATA Blu-Ray	PASS
		29	SONY DRX-510UL	PASS
		30	ASUS USB 2.0 External Slim DVD±R/RW Drive	PASS
		31	LG Protable Super Multi Drive - 8x DVD±RW	PASS
		32	Samsung 8X DVD±RW Slim External DVD Writer	PASS
		33	LACIE d2 DVD±RW Professional DVD Drive	PASS
		34	LaCie d2 8x Blu-ray Drive	PASS
8	External Hard Drives	35	Seagate FreeAgent Go 500GB USB 2.0 Portable Hard Drive	PASS
		36	NexStar 60GB HDD	PASS
		37	Transcend 1.8" HDD	PASS
		38	Silicon Power 32GB SSD	PASS
		39	USB Silicon Power 32G SSD	PASS
		40	Iomega eGo Portable Hard Drive w/ Protection Suite (320GB)	PASS
		41	Lenovo ThinkPad USB Secure Hard Drive (320GB)	PASS
		42	SimpleTech (Re)Drive	PASS
		43	Western Digital My Passport Hard Drive	PASS
		44	Toshiba USB 2.0 External Hard Drive	PASS
		45	Western Digital Element 1TB 3.5" Black External Hard Drive	PASS
		46	Hitachi SimpleDrive Mini 250GB USB 2.0 Portable Hard Drive	PASS
		47	Fantom Drives 1TB Silver GreenDrive External Hard Drive GD1000EU	PASS
		48	Data Robotics Drobo External USB 2.0 Robotic Storage Array	PASS
9	External RAID Enclosures	49	Data Robotics Drobo External USB 2.0 Robotic Storage Array	PASS
10	Flash Card Readers	50	Sony 17-in-1 Multi-Card Reader	PASS
		51	Rosewill USB2.0 Internal 3.5" 40-in-1 Card Reader	PASS
		52	Kingston 19-in-1 USB 2.0 Media Reader	PASS
		53	SDHC Card Reader	PASS
		54	SanDisk ImageMate All-in-One USB2.0 Reader	PASS
11	GPS System	55	TomTom ONE 130 S 3.5" GPS w/Text To Speech	PASS
12	Flash Drives	56	LaCie iamaKey 8GB USB Flash Drive	PASS
		57	SanDisk 4GB Cruzer Titanium Plus	PASS
		58	Memorex Travel drive 512MB Flash	PASS
		59	SONY 512MB Flash	PASS
		60	PQI 2G	PASS
		61	SONY 8GB Flash	PASS
		62	Kingston 8GB DataTraveler 112 USB Flash Drive	PASS
		63	SanDisk 16GB Cruzer Micro USB 2.0 Flash Drive	PASS
		64	Corsair 16GB Flash Voyager USB2.0 Flash Drive	PASS
		65	OCZ Technology 4GB Diesel USB 2.0 Flash Drive	PASS

		66	OCZ Technology 16GB Diesel USB 2.0 Flash Drive	PASS
		67	Patriot Xporter XT Boost 4GB Flash Drive	PASS
		68	OCZ Rally2 2GB USB2.0 Dual Channel Flash Drive	PASS
		69	OCZ Rally2 4GB USB2.0 Dual Channel Flash Drive	PASS
		70	SUPER TALENT Pico_C 8GB Flash Drive	PASS
		71	Crucial Gizmo! 8GB Hi-speed USB Drive	PASS
		72	Crucial Gizmo! 2GB Flash Drive	PASS
		73	HP 4GB USB 2.0 Flash Drive	PASS
13	Flatbed Scanners	74	Centon 4GB DataStick Sport USB 2.0 Flash Drive	PASS
		75	Canon CanoScan LiDE 100 2923B002 USB 2.0 Hi-Speed Interface Flatbed Scanner	PASS
		76	EPSON Perfection 4490 B11B176011 USB 2.0 Interface Flatbed Scanner	PASS
		77	BENQ 5150C USB2.0 Scanner	PASS
14	Game Controllers	78	HP Scan jet 3500C USB1.1 Scanner	PASS
		79	Belkin SpeedPad N52TE Tournament Edition	PASS
		80	Mircosoft xbox 360 Wireless Controller for Windows	PASS
		81	Saitek PZ31A Pro Gamer Command Unit	PASS
		82	Logitech ChillStream Controller	PASS
		83	Logitech Cordless RumblePad 2	PASS
		84	Logitech MOMO Racing Force Feedback Wheel	PASS
		85	Guillemot Thrustmaster T-Flight Hotas X Joystick	PASS
15	Headsets	86	Saitek P990 Dual Analog Pad	PASS
		87	Logitech ClearChat PC Wireless Stereo Headset	PASS
		88	Logitech 350 Headset	PASS
		89	Razer Megalodon 7.1 surround sound gaming headset	PASS
		90	Creative HS-1200 USB Circumaural Digital Wireless Gaming Headset	PASS
		91	Logitech Gaming Headset G330	PASS
		92	jWIN Electronics PC Headphone w/Microphone/USB - JBM55	PASS
		93	Plantronics .Audio 470 USB Headset	PASS
		94	Cyber Acoustics AC-840 Internet Communication USB Mono Headset	PASS
		95	SteelSeries 5H V2 USB Headset	PASS
		96	Tritton AXPC True 5.1 Surround Sound Gaming Headset	PASS
		97	eDimensional Audio FX Pro 5+1 USB Force Feedback Gaming Headset	PASS
16	Switches	98	PLANTRONICS GAMECOMPRO1 USB Circumaural Gaming Stereo Headset	PASS
		99	Logitech ClearChat Pro USB Headset	PASS
		100	AMC PW-141A Micro USB1.1/2.0 4-Port Switch	PASS
17	Keyboards - Wired	101	Logitech G19 Gaming Keyboard	PASS
		102	Logitech Illuminated Keyboard	PASS
		103	Microsoft Natural Ergonomic Keyboard 4000	PASS
		104	Logitech G15 Keyboard	PASS
		105	Saitek PK02 2-Tone USB Standard Eclipse II Keyboard	PASS
		106	Razer Lycosa - RZ03-00180900-R3T1	PASS
		107	Razer Lycosa - RZ03-00180100-R3U1	PASS
		108	Logitech Classic New Touch Keyboard 200 USB, Y-UR83	PASS
18	Keyboards + Mice - Wireless	109	Logitech V450 Laser Cordless Mouse for Notebooks	PASS
		110	HP Wireless 3-Button Optical Mouse	PASS
		111	Logitech Cordless Desktop MX 5500 Revolution Keyboard and Mouse	PASS
		112	HP GM322AA Black Wireless Standard Multimedia Keyboard & Mouse	PASS
		113	Logitech Cordless Desktop LX710 Laser	PASS

		114	Microsoft Natural Ergonomic Desktop 7000	PASS
		115	Logitech Wireless Desktop MK300 Keyboard and Mouse	PASS
19	Label Printers	116	brother QL500 50 labels / min. 300 x 300 dpi Label Printer	PASS
20	Mice - Wired	117	Logitech USB Optical Mouse	PASS
		118	A4 Tech X-718F Mouse	PASS
		119	A4 Tech NB-30D Mouse	PASS
		120	Logitech Trackman Marble Trackball	PASS
		121	Logitech MX518 Optical Gaming Mouse (8 Buttons)	PASS
		122	Logitech G5 Laser Mouse	PASS
		123	Logitech G9 Laser Mouse	PASS
		124	Microsoft Wheel Mouse Optical (3 Buttons)	PASS
		125	Microsoft N71-00007S Black 3 Buttons 1 x Wheel USB Wired Optical Wheel Mouse	PASS
		126	Microsoft SideWinder X5 Mouse (9 Buttons)	PASS
		127	Microsoft SideWinder HKA-00001 Black 9 Buttons 1 x Wheel USB Wired Mouse	PASS
		128	RAZER Lachesis Banshee Blue High Precision 3G Laser Gaming Mouse	PASS
		129	Razer DeathAdder Precision Optical Gaming Mouse - RZ01-00151400-R3U1	PASS
21	MP3 Devices	130	Razer DeathAdder Gaming Mouse - RZ01-00150100-R3M1	PASS
		131	GIGABYTE GK-KM6150-M Mouse	PASS
		132	SanDisk Sansa Fuze 4GB Flash Portable Media Player	PASS
		133	SanDisk 2GB Sansa® Clip+ MP3 Player	PASS
		134	Microsoft Zune 8GB Digital Media Player	PASS
		135	Microsoft Zune HD Wireless media Player 32GB	PASS
		136	Creative Zen 16GB Digital Multimedia Device	PASS
		137	Centon 8GB Craze MP3 Player	PASS
22	Printers	138	Visual Land The V-Core MP5 Portable Media Player	PASS
		139	Apple iPod touch 8GB Flash Portable Media Player	PASS
		140	Brother HL-2140 Compact, Personal Laser Printer	PASS
		141	HP Deskjet F4280 CB656A Up to 26 ppm 4800 x 1200 dpi Thermal Inkjet MFC / All-In-One Color Printer	PASS
		142	HP LaserJet P1006 CB411A Personal Up to 17 ppm Monochrome Laser Printer	PASS
		143	Canon PIXMA iP2600 Inkjet Photo Printer	PASS
		144	Lexmark X5470 Multifunction Printer - 22N0000	PASS
		145	Canon LBP3000 Laser Printer	PASS
23	Sound Cards	146	SAMSUNG ML-2510 Personal Up to 24 ppm Monochrome Laser Printer	PASS
		147	EPSON TX110 Printer	PASS
		148	HP Deskjet D5560 Printer	PASS
		149	Turtle Beach Audio Advantage Micro II Virtual 5.1 Surround Channels USB Analog & Digital Audio Adapter	PASS
		150	SONY UAB-260 USB Audio Box	PASS
		151	Turtle Beach Audio Advantage Micro Virtual 5.1 Surround Channels USB Interface Sound Card	PASS
		152	Comodow SJ-588 USB 3D Sound 5.1	PASS
		153	GWC USB 5.1 Channel Audio Adapter	PASS
24	Speakers	154	AOC USB Audio Controller USB2-251 Adaptateur Audio USB2.0-5.1	PASS
		155	Creative USB Sound Blaster X-Fi Surround 5.1	PASS
		156	Logitech V20 Notebook Speaker	PASS
		157	Logitech S-0194B speaker	PASS
		158	Logitech S-150 USB Speaker	PASS
		159	V-Gear inlounge U210-W USB Speaker	PASS

25	TV Tuners	160	KWORLD USB ATSC TV Stick	PASS
		161	Avermedia AVerTV Hybrid Volar Max TV Tuner	PASS
		162	AverMedia A808 TV Tuner	PASS
		163	Compro U3 TV Tuner	PASS
		164	Hauppauge WinTV-HVR-850 TV Tuner	PASS
		165	KWORLD KW-UB424-D T09	PASS
26	Webcams	166	Blue Microphone EYEBALL HD Webcam with Mic	PASS
		167	Creative Live! Cam Optia AF Webcam	PASS
		168	Microsoft LifeCam Show	PASS
		169	Microsoft LifeCam Cinema	PASS
		170	Logitech Protable Webcam C905	PASS
		171	Logitech Webcam Pro 9000	PASS
		172	Microsoft LifeCam VX-3000 USB 2.0 WebCam	PASS
		173	Logitech Webcam c200	PASS
		174	Microsoft VX-7000	PASS
27	Wireless Network Adapters	175	Microsoft LifeCam VX-6000 Webcam	PASS
		176	NETGEAR WG111v3 Wireless USB Adapter	PASS
		177	TRENDnet 54Mbps Wireless G USB2.0 Adapter	PASS
		178	Zonet Wireless 802.11g USB2.0 Wireless Adapter	PASS
		179	ENCORE 802.11G Wireless USB2.0 Adapter	PASS
		180	Rosewill IEEE 802.11b/g Wireless USB2.0 Adapter 2dBi Antenna	PASS
		181	LINKSYS Wireless-G USB1.1/2.0 Network Adapter	PASS
		182	AZiO AWU254 USB 2.0 802.11g 54Mbps Wireless Pen Adapter	PASS
		183	ASUS WL-167G V3 Wireless USB2.0 Adapter	PASS
		184	EDIMAX EW-7318USG USB 2.0 Wireless LAN Hi-Gain Adapter	PASS
		185	Corega CG-WLUSB2GTST WiFi	PASS
		186	Buffalo WLI-U2-KG125S	PASS
		187	VNT 6656AU WiFi	PASS
		188	Spark WUBR-501 Wi-Fi	PASS
28	Hubs	189	3Com WL-555 Wi-Fi	PASS
		190	BELKIN G Wireless USB Network Adapter	PASS
		191	Aluratek 7-Port USB2.0 Hub	PASS
		192	Belkin Hi-Speed USB2.0 4-Port Ultra-Mini Hub	PASS
		193	Rosewill 7-Port Hub [RHUB-310]	PASS
		194	IOGEAR 4-Port USB 2.0Hub	PASS
		195	Professional Cable USB 2.0 4 Port Hub	PASS
		196	Rosewill USB2.0 7-Port Hub [RHUB-300]	PASS
		197	Logitech Premium 4-Port USB Hub for Notebooks	PASS
		198	GTMax Accessories 4 Port Hub	PASS
		199	AD 4 Port Hub AD-401	PASS
		200	Mitsumi Floppy	PASS
29	Floppies	201	SONY USB1.1 Floppy	PASS
30	Paint Pads	202	Wacom CTE-440 Paint Pad	PASS
31	Ethernet Cards	203	D-Link DUB-E100 10/100 Ethernet	PASS
32	Other Storage Devices	204	Buffalo 1.3GB MO	PASS
		205	Fujitsu 1.3GB MO	PASS
		206	Iomega 750MB Zip	PASS
		207	SanDisk 1GB SD (Plus USB)	PASS
		208	Buffalo MOU2-P640R USB2.0 MO 640M	PASS
33	Testers	209	PASSMARK Burn in USB2.0 Loopback	PASS

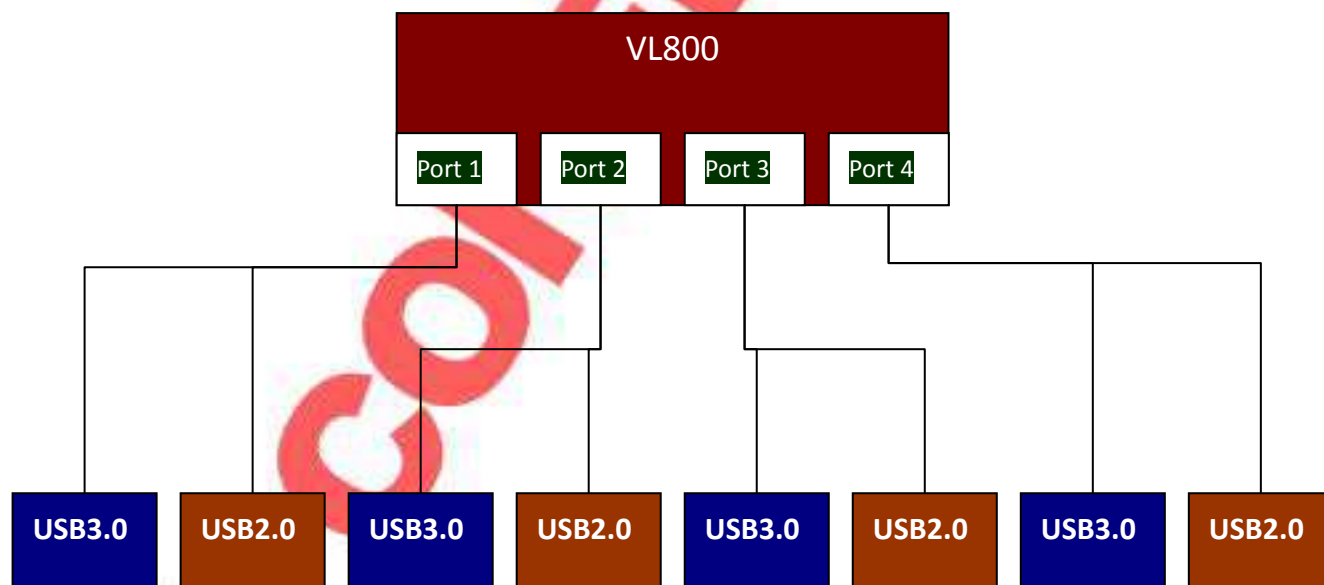
3. Functionality Test

Chip	VL800_B3
FW	010200
Driver	V1.60C
Motherboard	ASUS P7P55D-E
OS	Win 7_32bit SP1 / Win 7_64bit SP1
PCIE Slot	Gen2
<u>Attach 4 SS devices at the same time</u> DP1: ASMedia ASM1051 DP2: VLI VL700 DP3: BUFFALO HD-HXU3 DP4: JMicron JMS539 <u>Attach 4 HS devices at the same time</u> DP1: OCZ DIESEL USB 2.0 Flash Disk 4GB DP2: Maxtor 3000LE DP3: CyberSLIM F5 E-SATA DP4: VF0560 Live! Cam Optia AF <u>Attach 1SS+1HS+1FS+1LS devices at the same time</u> DP1[SS]: VLI VL700 DP2[HS]: OCZ DIESEL USB 2.0 Flash Disk 4GB DP3[FS]: Logitech S-150 Speaker DP4[LS]: GIGABYTE GK-KM6150-M Mouse	

Test Item		Test Time	4SS	4HS	1SS+1HS+1FS+1LS
Inactive Attach/Detach	Normal PnP	X20	PASS	PASS	PASS
	Quick PnP	X20	PASS	PASS	PASS
Active Boot	Cold Boot	X5	PASS	PASS	PASS
	Warm Boot	X5	PASS	PASS	PASS
Active ACPI Mode	S1	X10	PASS	PASS	PASS
	S3	X10	PASS	PASS	PASS
	S4	X10	PASS	PASS	PASS
	Hybrid Sleep	X10	PASS	PASS	PASS
Copy Compare	DUTs Go Around	4GB/loop	PASS	PASS	PASS
	DUTs C&C	5GB/1file	PASS	N/A	N/A
Droop (Active Attach/Detach)	C&C + Normal PnP	X10	PASS	PASS	PASS
	C&C + Quick PnP	X10	PASS	PASS	PASS

4. Power Consumption

VL800 B3 / FW: 010200 / Driver: V1.60C / MB: ASUS P7H55D-M EVO(Gen2)					
Voltage		1.0V Current (mA)	+3.3V Current (mA)	+3.3V AUX Current (mA)	IC Power (mW)
Mode					
No Device	Idle	138.00	101.60	64.80	687.12
	Suspend	18.80	0.00	12.10	58.73
USB3.0 Device	Idle (1 device)	168.60	101.60	150.50	1000.53
	Idle (2 devices)	198.20	101.70	204.40	1208.33
	Idle (3 devices)	224.70	101.90	257.60	1411.05
	Idle (4 devices)	252.30	101.90	310.60	1613.55
	Write (4 devices)	290.10	102.00	208.00	1313.10
	Read (4 devices)	296.40	102.00	308.00	1649.40
	Suspend (4 devices)	19.40	0.00	11.80	58.34
USB2.0 Device	Idle (1 device)	138.30	101.40	92.50	778.17
	Idle (2 devices)	139.40	101.50	120.60	872.33
	Idle (3 devices)	140.70	101.50	147.50	962.40
	Idle (4 devices)	141.70	101.70	175.30	1055.80
	Write (4 devices)	161.90	101.70	185.80	1110.65
	Read (4 devices)	159.30	101.60	176.00	1075.38
	Suspend (4 devices)	19.40	0.00	12.20	59.66

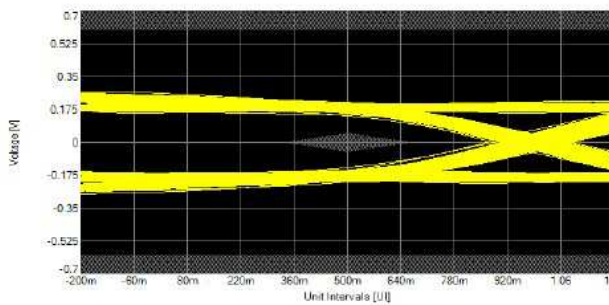


5. Eye Pattern

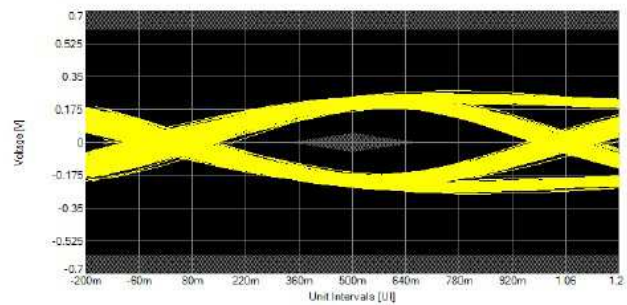
(1) Super Speed

USB3.0 TX Eye – Port1

Eye Diagram



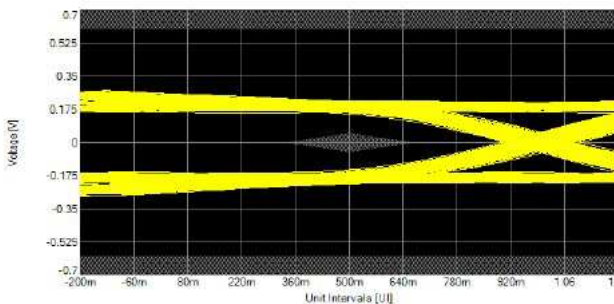
Eye Diagram



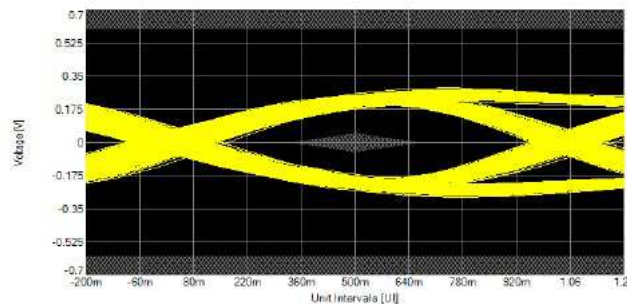
Pass	# Failed	# Trials	Test Name	Actual Value	Margin	Spec Range
✓	0	1	LFPS Peak-Peak Differential Output Voltage	25.4 %	800.0mV <= VALUE <= 1.2000V	
✓	0	1	LFPS Period (tPeriod)	25.0 %	20.0000ns <= VALUE <= 100.0000ns	
✓	0	1	LFPS Burst Width (tBurst)	45.6 %	600.0ns <= VALUE <= 1.4000µs	
✓	0	1	LFPS Repeat Time Interval (tRepeat)	47.4 %	6.0000µs <= VALUE <= 14.0000µs	
✓	0	1	LFPS Rise Time	95.8 %	VALUE <= 4.0000ns	
✓	0	1	LFPS Fall Time	95.9 %	VALUE <= 4.0000ns	
✓	0	1	LFPS Duty cycle	43.4 %	40.0000% <= VALUE <= 60.0000%	
✓	0	1	Unit Interval (with SSC)	6.1 %	199.940ps <= VALUE <= 201.060ps	
✓	0	1	SSC Deviation	34.1 %	3.700000kppm <= VALUE <= 5.300000kppm	
✓	0	1	SSC Modulation Rate	42.0 %	30.00000kHz <= VALUE <= 33.00000kHz	
✓	0	1	SSC Slew Rate	47.1 %	VALUE <= 10.000ms	
✓	0	1	Far End Random Jitter (CTLE ON)	58.3 %	VALUE <= 230mUI	
✓	0	1	Far End Maximum Deterministic Jitter (CTLE ON)	45.3 %	VALUE <= 430mUI	
✓	0	1	Far End Total Jitter at BER=12 (CTLE ON)	49.6 %	VALUE <= 660mUI	
✓	0	1	Far End Template Test (CTLE ON)	100.0 %	VALUE = 0.000	
✓	0	1	Far End Peak-Peak Differential Output Voltage (CTLE ON)	40.6 %	100.0mV <= VALUE <= 1.2000V	

USB3.0 TX Eye – Port2

Eye Diagram



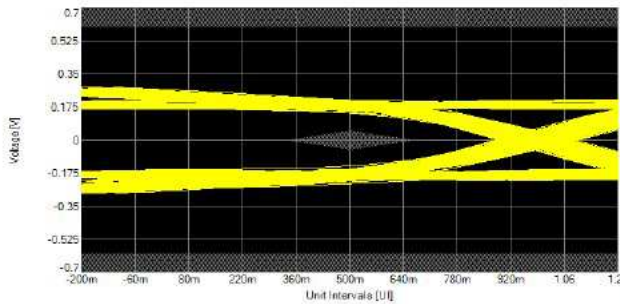
Eye Diagram



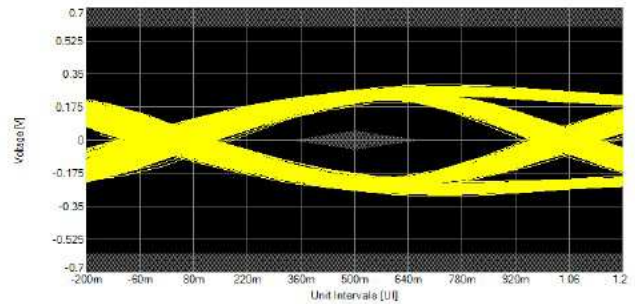
Pass	# Failed	# Trials	Test Name	Actual Value	Margin	Spec Range
✓	0	1	LFPS Peak-Peak Differential Output Voltage	19.6 %	800.0mV <= VALUE <= 1.2000V	
✓	0	1	LFPS Period (tPeriod)	25.0 %	20.0000ns <= VALUE <= 100.0000ns	
✓	0	1	LFPS Burst Width (tBurst)	47.6 %	600.0ns <= VALUE <= 1.4000µs	
✓	0	1	LFPS Repeat Time Interval (tRepeat)	47.6 %	6.0000µs <= VALUE <= 14.0000µs	
✓	0	1	LFPS Rise Time	96.1 %	VALUE <= 4.0000ns	
✓	0	1	LFPS Fall Time	96.3 %	VALUE <= 4.0000ns	
✓	0	1	LFPS Duty cycle	43.0 %	40.0000% <= VALUE <= 60.0000%	
✓	0	1	Unit Interval (with SSC)	6.2 %	199.940ps <= VALUE <= 201.060ps	
✓	0	1	SSC Deviation	34.1 %	3.700000kppm <= VALUE <= 5.300000kppm	
✓	0	1	SSC Modulation Rate	44.6 %	30.00000kHz <= VALUE <= 33.00000kHz	
✓	0	1	SSC Slew Rate	44.2 %	VALUE <= 10.000ms	
✓	0	1	Far End Random Jitter (CTLE ON)	57.0 %	VALUE <= 230mUI	
✓	0	1	Far End Maximum Deterministic Jitter (CTLE ON)	46.7 %	VALUE <= 430mUI	
✓	0	1	Far End Total Jitter at BER=12 (CTLE ON)	50.3 %	VALUE <= 660mUI	
✓	0	1	Far End Template Test (CTLE ON)	100.0 %	VALUE = 0.000	
✓	0	1	Far End Peak-Peak Differential Output Voltage (CTLE ON)	43.4 %	100.0mV <= VALUE <= 1.2000V	

USB3.0 TX Eye – Port3

Eye Diagram



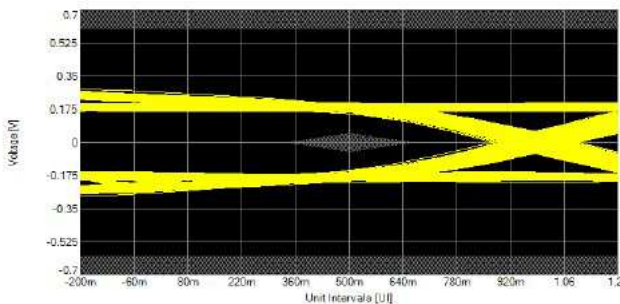
Eye Diagram



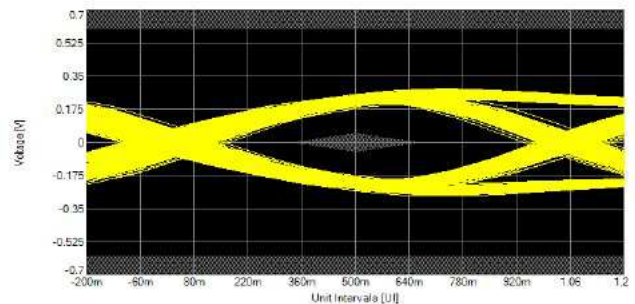
Pass	# Failed	# Trials	Test Name	Actual Value	Margin	Spec Range
✓	0	1	LFPS Peak-Peak Differential Output Voltage		21.8 %	800.0mV <= VALUE <= 1.2000V
✓	0	1	LFPS Period (tPeriod)		25.0 %	20.0000ns <= VALUE <= 100.0000ns
✓	0	1	LFPS Burst Width (tBurst)		47.6 %	600.0ns <= VALUE <= 1.4000µs
✓	0	1	LFPS Repeat Time Interval (tRepeat)		47.6 %	6.0000µs <= VALUE <= 14.0000µs
✓	0	1	LFPS Rise Time		96.7 %	VALUE <= 4.0000ns
✓	0	1	LFPS Fall Time		96.7 %	VALUE <= 4.0000ns
✓	0	1	LFPS Duty cycle		43.3 %	40.0000% <= VALUE <= 60.0000%
✓	0	1	Unit Interval (with SSC)		6.6 %	199.940ps <= VALUE <= 201.060ps
✓	0	1	SSC Deviation		35.9 %	3.700000kppm <= VALUE <= 5.300000kppm
✓	0	1	SSC Modulation Rate		48.9 %	30.00000kHz <= VALUE <= 33.00000kHz
✓	0	1	SSC Slew Rate		46.4 %	VALUE <= 10.000ms
✓	0	1	Far End Random Jitter (CTLE ON)		57.4 %	VALUE <= 230mUI
✓	0	1	Far End Maximum Deterministic Jitter (CTLE ON)		44.4 %	VALUE <= 430mUI
✓	0	1	Far End Total Jitter at RFR-12 (CTLE ON)		48.9 %	VALUE <= 660mUI
✓	0	1	Far End Template Test (CTLE ON)		100.0 %	VALUE = 0.000
✓	0	1	Far End Peak-Peak Differential Output Voltage (CTLE ON)		44.5 %	100.0mV <= VALUE <= 1.2000V

USB3.0 TX Eye – Port4

Eye Diagram



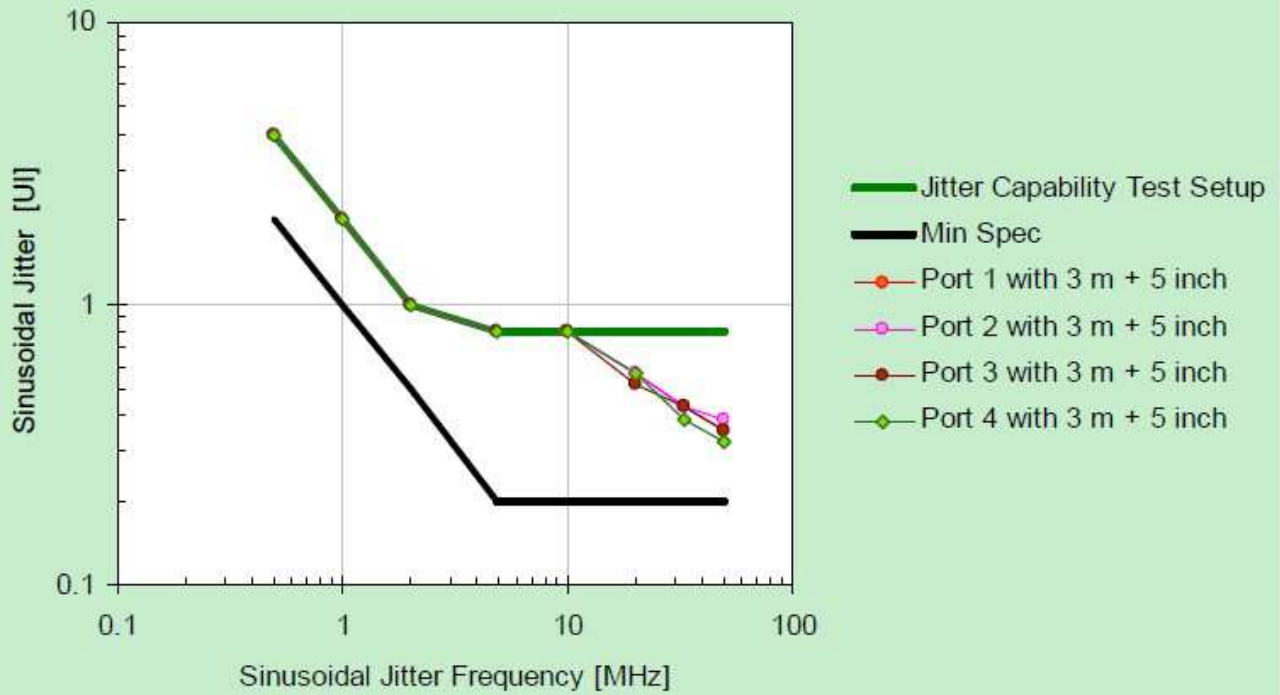
Eye Diagram



Pass	# Failed	# Trials	Test Name	Actual Value	Margin	Spec Range
✓	0	1	LFPS Peak-Peak Differential Output Voltage		23.7 %	800.0mV <= VALUE <= 1.2000V
✓	0	1	LFPS Period (tPeriod)		25.0 %	20.0000ns <= VALUE <= 100.0000ns
✓	0	1	LFPS Burst Width (tBurst)		48.6 %	600.0ns <= VALUE <= 1.4000µs
✓	0	1	LFPS Repeat Time Interval (tRepeat)		47.4 %	6.0000µs <= VALUE <= 14.0000µs
✓	0	1	LFPS Rise Time		96.3 %	VALUE <= 4.0000ns
✓	0	1	LFPS Fall Time		96.4 %	VALUE <= 4.0000ns
✓	0	1	LFPS Duty cycle		42.6 %	40.0000% <= VALUE <= 60.0000%
✓	0	1	Unit Interval (with SSC)		5.2 %	199.940ps <= VALUE <= 201.060ps
✓	0	1	SSC Deviation		32.2 %	3.700000kppm <= VALUE <= 5.300000kppm
✓	0	1	SSC Modulation Rate		49.2 %	30.00000kHz <= VALUE <= 33.00000kHz
✓	0	1	SSC Slew Rate		47.5 %	VALUE <= 10.000ms
✓	0	1	Far End Random Jitter (CTLE ON)		57.4 %	VALUE <= 230mUI
✓	0	1	Far End Maximum Deterministic Jitter (CTLE ON)		46.7 %	VALUE <= 430mUI
✓	0	1	Far End Total Jitter at RFR-12 (CTLE ON)		50.5 %	VALUE <= 660mUI
✓	0	1	Far End Template Test (CTLE ON)		100.0 %	VALUE = 0.000
✓	0	1	Far End Peak-Peak Differential Output Voltage (CTLE ON)		42.6 %	100.0mV <= VALUE <= 1.2000V

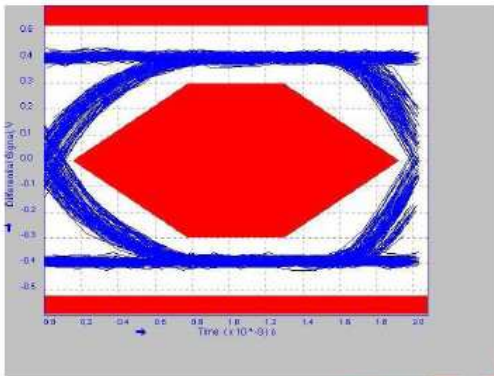
USB3.0 RX Tolerance

Jitter Tolerance USB SuperSpeedDevice

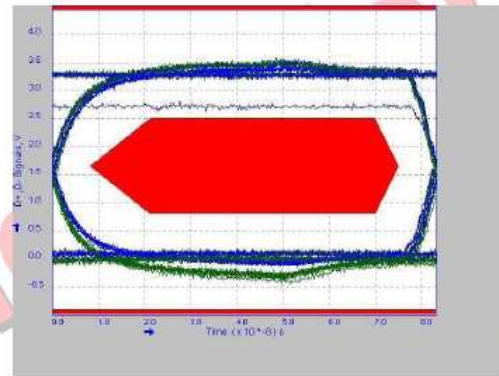


(2) High Speed / Full Speed / Low Speed

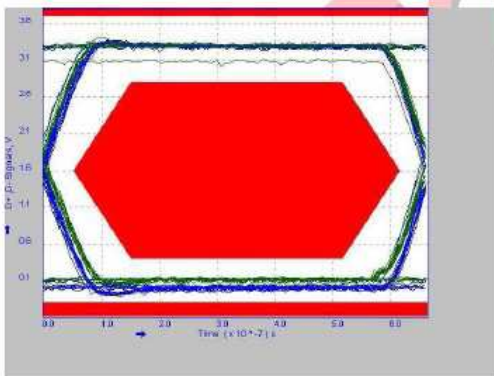
USB2.0 Eye – Port1



HS SQ



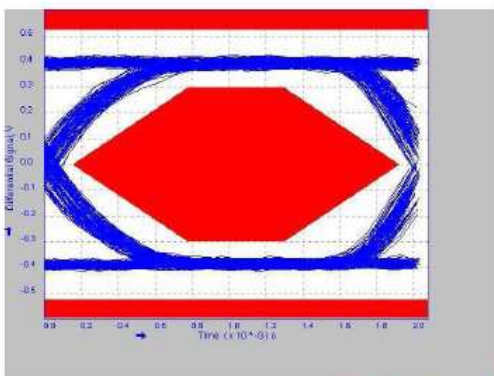
FS SQ



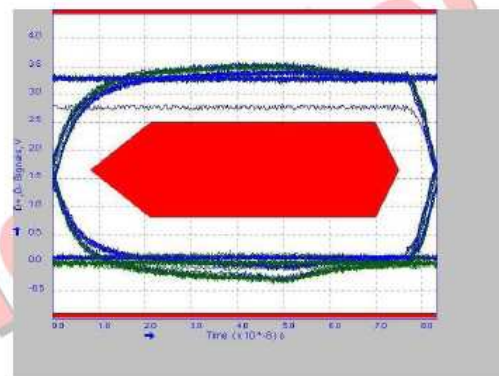
LS SQ

PASS

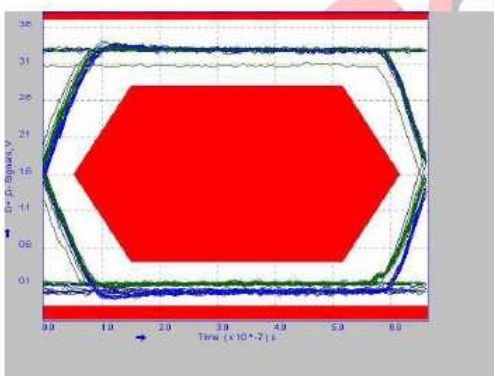
USB2.0 Eye – Port2



HS SQ



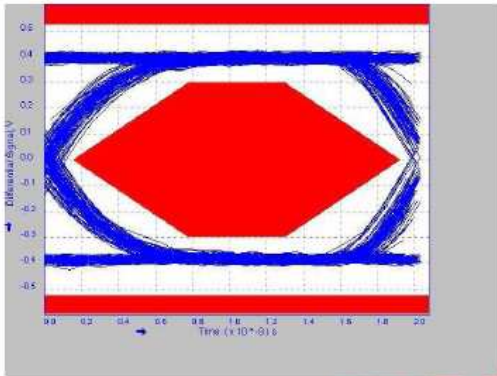
FS SQ



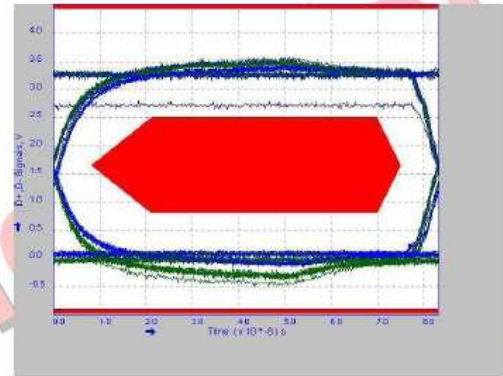
LS SQ

PASS

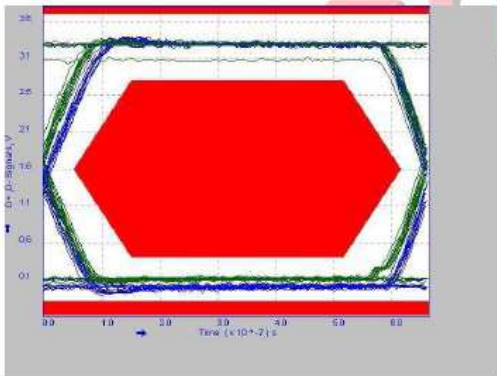
USB2.0 Eye – Port3



HS SQ



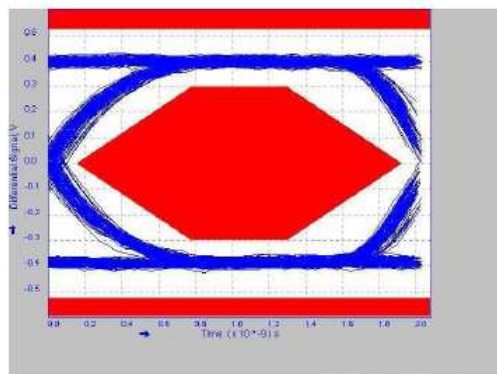
FS SQ



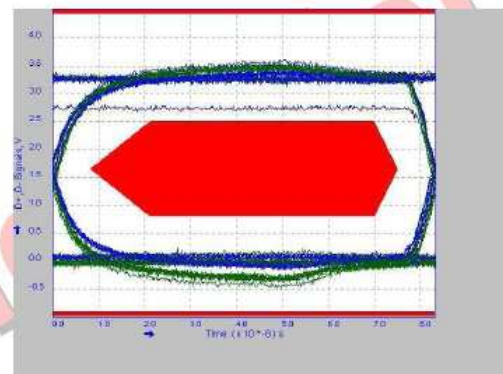
LS SQ

PASS

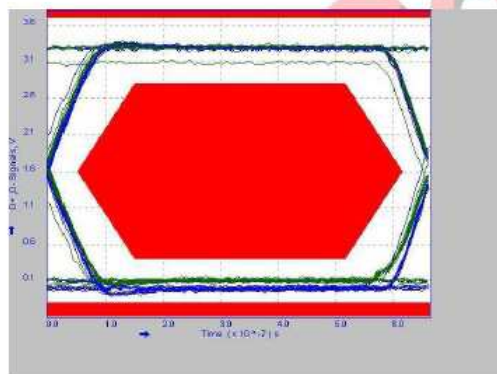
USB2.0 Eye – Port4



HS SQ



FS SQ

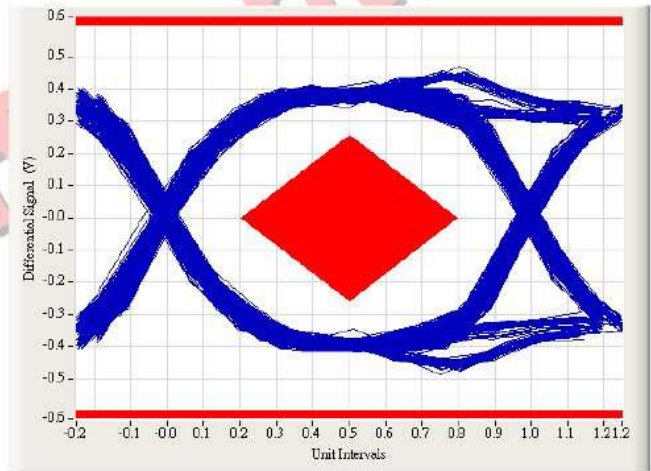
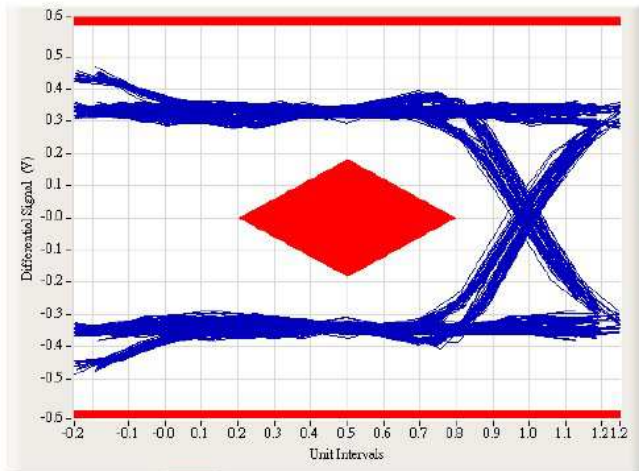


LS SQ

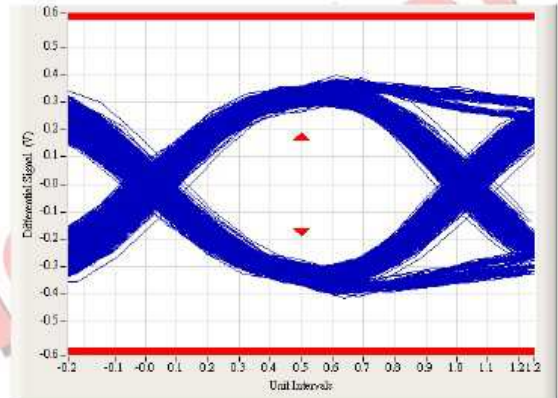
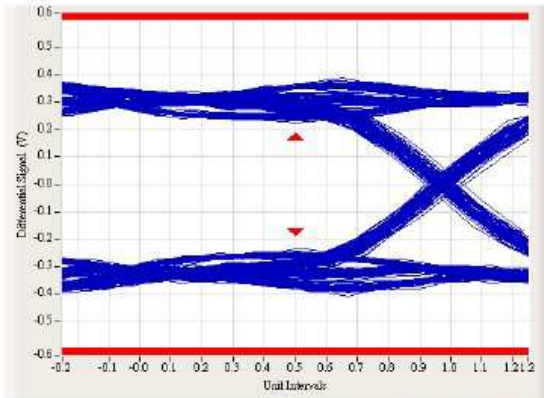
PASS

6. PCIE Eye Pattern

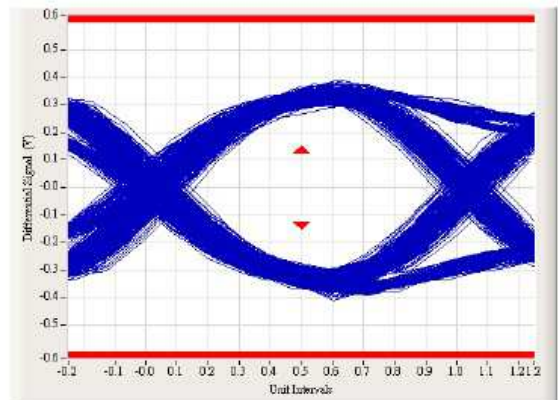
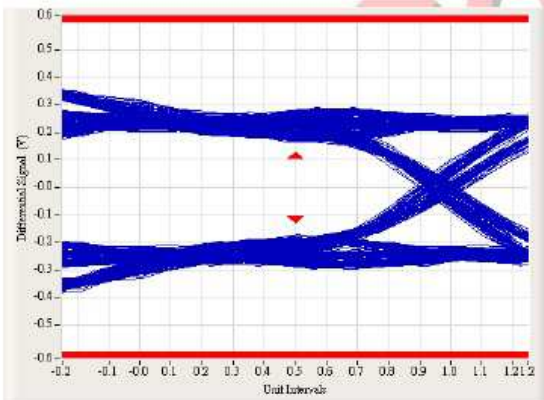
(1) PCIE Gen1 Eye Diagram



(2) PCIE Ge2 Eye Diagram



PCIE 2
3.5dB



PCIE 2
6dB